ICA
Image Chain Analysis

NITF Softcopy History Tag

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NITF Softcopy History Tag
Outline

Introduction

Background

Motivation

History Tag Structure

History Tag ConOps

Benefits to Analysts

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Background

- Formats of Systems B and D data changed in 1996
- Program Office initiated an outreach effort to the GOTS/COTS exploitation systems
  - JICA provided technical guidance to vendors for optimal display of Systems B and D data
  - Defined generic S/C processing flows for both data types
- JICA found that some COTS systems could not implement recommended chains

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Background

- Many COTS systems receive data via DataMaster or Product Management Tool (PMT)
- JICA requested that both packages apply the necessary mappings to Systems B and D data, if desired by the recipient
- Resultant image is called display-ready
  - Requires only standard ELT functions
    - Sharpening
    - Dynamic Range Adjustment (DRA)
    - Tonal Transfer Curve (TTC)

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Motivation

- COTS vendors were concerned about differentiating between display-ready and baseline formats from RE
- Users were concerned about S/C processing steps being applied repeatedly to all types of National imagery
- JICA team recommended creation of a “History Tag” for inclusion in the image support data
  - Indicate display-ready versus baseline format
  - Include DMID from ESD message
  - Provide information about S/C processing functions applied to each image

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Motivation

- Complete data for every image would enable vendors and users to make educated decisions regarding tonal processing, display, and exploitation of National imagery
- Primary purpose of the tag is to provide a history of the S/C functions applied to each image
- History Tag was developed for all National Imagery
  - Could be expanded to include tactical or commercial data
- JICA recommended creation of a new Support Data Extension (SDE) in the NITF standard

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History Tag Structure

- Provides a chronological listing of processing events, starting with the first event; creation of the NITF formatted image
- Includes information about image resolution, tonal processing, compression, and magnification
- Provides a field for general comments by users
- Tag should be updated each time the image is processed and saved

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Systems Impacted

- Government segments
  - LCM, EPS
- NIMA
  - Libraries(NILs, CILs, IPLs), IDEX, DE/REs
  - NIMA GIA (MAWS)
- CIGSS Compliant Systems
  - JSIPS, MIES, PINES, Navy JSIPS, DIWS, DIWSA
- Workstations
  - DIEPS, Vitec VIPER, DataMaster, ELT7000, MATRIX

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Systems Impacted

- Commercial
  - Space Imaging EOSAT
- Tactical (TBR)
  - Common Imagery Processor (CIP)
  - Airborne sensors
  - PARAGON

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History Tag ConOps

- Gov't Segments (EPS, RE/DE, LCM, IDEX)
- Create tag structure when NITF image is generated
  - Indicate system type, imagery source, and input format
- Populate initial tag fields and first processing event
  - Indicate expansion or compression applied
- Tonal enhancement fields are generally not applicable to these segments and would be filled with zeros

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History Tag ConOps

GOTS/COTS ELT vendors and users

- Read tag contents prior to selection of default processing parameters, compression, and display
  - Display-ready status for Systems B and D data
  - Remapped System C SRP data
  - Tonal enhancements applied (Sharpening, DRA, TTC)
    - Apply “Do-Nothing” enhancements
  - Selection of BWC for further dissemination
- Update tag by creating a new processing event each time the image is processed and saved

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Benefits to Analysts

- Increase exploitation system inter-operability
  - Imagery can be properly enhanced and distributed among various exploitation packages within a site or between sites
    - Exploit on 1st system → archive → exploit on 2nd system
- Increase IA confidence in exploiting known archived imagery
  - Ascertain if image has been enhanced or modified
  - Request original data if target area is obscured

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NITF Softcopy History Tag Impacts

- Documents impacted
  - NITFIRD (S2035A)
    - LCM, EPS, RE/DE, IDEX
  - Support Data Extension (SDE 1.2)
    - National NITF systems
  - USIGS Interoperability Profile (UIP)
    - NIMA Libraries

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NITF Softcopy History Tag Approval Process

- S/C History Tag is initially added to the NITFIRD
  - NITFIRD goes to Government boards for approval
- After Government approval, tag is added to SDE
  - SDE goes to NTB for approval
- After NTB approval, tag is removed from NITFIRD and points to SDE document
- After NTB approval, tag is added to UIP document
  - UIP goes to Government board for approval

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NITF Softcopy History Tag Schedule

Activity	Date
ROM Submittal	Feb 11
NTB Meeting	Mar 03
Formats WG	TBD
S2035A RFC	Mar 03 - Apr 13
NCCB	Apr 28
NTB Meeting	May 26-28
SDE RFC	May 29, Jun 23
UIP RFC	May 29, Jul 28